REMARKS

Claims 1-13 are pending in this application. The Examiner rejected Claims 1, 3-6, 8-10, 12 and 13 under 35 U.S.C. 103(a) and indicated that Claims 2, 7, and 11 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1-13 have been amended and non-elected Claims 14-20 have been cancelled in the foregoing amendment. The Summary of the Invention has been amended to clarify the invention. Support for the amendment to the summary is found in Fig. 14 and its corresponding disclosure as discussed in more detail below.

Claims 2-5, 7-9, 11-12, and 13

The Examiner indicated that Claims 2, 7, and 11 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 2, 7, and 11 have been amended in independent form to include the subject matter of the base claims, original independent Claims 1, 6, and 10 respectively, and have been amended to clarify the claimed invention. Claims 3-5, 8-9, 12, and 13 have been amended to depend from amended independent Claims 2, 7, or 11. Accordingly, Claims 2-5, 7-9, 11-12, and 13 should now be in condition for allowance.

Shapiro and *Suzuki* Do Not Show or Suggest the Invention of Claims 1, 6, and 10

The Examiner rejected Claims 1, 6, and 10 as being unpatentable over U.S. Patent No. 5,522,036 to Shapiro ("*Shapiro*") in view of U.S. Patent No. 4,984,239 to Suzuki et al. ("*Suzuki*"). The Applicants traverse this rejection for the reasons discussed below.

Claim 1

Amended Claim 1 recites, among other elements, an information processing apparatus for testing and debugging multitask programs operating on a real-time operating system, comprising: user interface means for displaying an operation state of a program by an X-Y coordinate with respect to an X-axis value representing timings of events and a Y-axis value

representing tasks, to a user in a time-series manner based on program execution history information, and for receiving a portion of a defect pointed out by the user in the displayed operation state; and operation analysis means for analyzing a cause of the defect from ~~the portion~~ a timing and a task of the defect pointed out from the user by said user interface means and from the operation state of the program, and for specifying a solution for solving the cause of the defect.

Multitasking involves one CPU that switches from one program to another so quickly that it gives the appearance of executing all of the programs at the same time. In multitasking, when a CPU starts a task, a controller checks for consistency within other tasks that are executed on the same CPU. Thus, executing multitask programs requires a special OS that supports, among other things, switching and interrupting tasks and controlling states of a plurality of tasks. The tasks can have three different states – "being executed", "waiting to be executed", and "terminated". To debug a multitask program, it is important to identify the timing and task that caused the defect. Fig. 14 shows an operation state of a multitask program that is represented by an X-Y coordinate in which the X-axis value represents the timings of events of a task that caused the defect, while the Y-axis value represents the tasks. The apparatus of amended Claim 1 determines a defect based on the timing and task pointed out by the user, for example by the position of the user's cursor (at the 7th event and task A in Fig. 14). This feature allows the apparatus to find an appropriate "system call" on the OS to determine whether the multitask program is running properly.

In contrast, *Shapiro* discloses an apparatus for analyzing defects on conventional sequential programs. Although *Shapiro* describes a "means for said secondary process to build and propagate an elementary knowledge of the target process functionality through knowledge induction that propagates said elementary knowledge through a place and time within the target process", it fails to disclose how the apparatus would work when operating multitask programs on a real-time OS. *Suzuki* describes how to analyze defects on conventional software, but also fails to describe how to test and debug multitask programs operating on a real-time OS. Thus, neither *Shapiro* nor *Suzuki* discloses an information

PAGE 15/17 * RCVD AT 11/4/2004 3:08:51 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/2 * DNIS:8729306 * CSID:404 815 6555 * DURATION (mm-ss):04-42

processing apparatus for testing and debugging multitask programs operating on a real-time operating system, comprising: user interface means for displaying an operation state of a program by an X-Y coordinate with respect to an X-axis value representing timings of events and a Y-axis value representing tasks, to a user in a time-series manner based on program execution history information, and for receiving a portion of a defect pointed out by the user in the displayed operation state; and operation analysis means for analyzing a cause of the defect from ~~the portion~~ a timing and a task of the defect pointed out from the user by said user interface means and from the operation state of the program, and for specifying a solution for solving the cause of the defect, as recited by amended Claim 1. Accordingly, amended Claim 1 would not have been obvious to one of ordinary skill from *Shapiro* and *Suzuki* at the time the Applicants made the claimed invention. Accordingly, Claim 1 should be allowed.

Claims 6 and 10

Claims 6 and 10 have been amended to include the limitations similar to amended Claim 1. Thus, for the reasons discussed above, a recording medium of amended Claim 6 and a defect analysis method of amended Claim 10 would not have been obvious to one of ordinary skill from *Shapiro* and *Suzuki* at the time the Applicants made the claimed invention. Accordingly, Claims 6 and 10 should also be allowed.

Submission of Certified Copies of Priority Documents

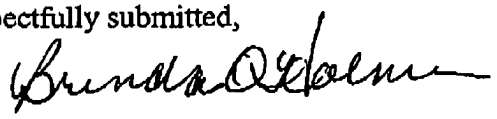
The Office action indicates that certified copies of the priority documents were received. However, our records show that they have not been submitted. Therefore, the certified copies of priority documents are being submitted under a separate cover.

PAGE 16/17 * RCVD AT 11/4/2004 3:08:51 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/2 * DNIS:8729306 * CSID:404 815 6555 * DURATION (mm-ss):04-42

CONCLUSION

The foregoing is submitted as a complete response to the Office Action identified above. This application should now be in condition for allowance, and the Applicants solicit a notice to that effect. If there are any issues that can be addressed via telephone, the Examiner is asked to contact the undersigned at 404.685.6799.

Respectfully submitted,



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PAGE 17/17 * RCVD AT 11/4/2004 3:08:51 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/2 * DNIS:8729306 * CSID:404 815 6555 * DURATION (mm-ss):04-42